

Table S7. Comparison of aerosol optical depth (AOD) and angstrom exponent (AE) between model simulated and climatology values from satellite measurements over BoB and AS regions.

Period	Bay of Bengal		Arabian Sea		Reference
	AOD	AE	AOD	AE	
ICARB-2006 Mar-May	0.27±0.06	1.1 ±0.3	0.26±0.09	0.83 ± 0.2	Present study
MISR 9 year (2000-2008)	0.33±0.05	1.02±0.12	0.33±0.05	0.80 ± 0.13	Dey and Di Girolamo, 2008 (Mar-May)
MODIS 8 year (2001-2008)	0.29±0.02		0.28± 0.03		Present study
ICARB-2006 Mar-May	0.36± 0.17	1.12±0.29	0.25± 0.17	0.73 ± 0.38	Kedia and Ramachandran, 2008

Table S8. Inter comparison of ARFE at the top-of-the-atmosphere (TOA), surface (SUR) and within the atmosphere (ATM) during ICARB campaign.

Region	Aerosol radiative forcing efficiency (ARFE ($W m^{-2} \tau^{-1}$))					
	TOA		SUR		ATM	
	Present study	Moorthy et al., 2009	Present study	Moorthy et al., 2009	Present study	Moorthy et al., 2009
Bay of Bengal	-31.95 ± 4	-30 ± 3	-68 ± 6	-61 ± 5	37 ± 3	31 ± 6
Arabian Sea	-34.7 ± 4	-35 ± 3	-64 ± 8	-53 ± 5	29 ± 4	18 ± 7

Table S9. Comparisons of model simulate multiyear (2001-2005) pre-monsoon season mean satellite-tied aerosol radiative forcing with the radiative forcing during ICARB 2006 period.

Region	2001-2005 pre-monsoon mean			ICARB 2006 pre-monsoon mean		
	satellite-tied DARF ($W m^{-2}$)			satellite-tied DARF ($W m^{-2}$)		
	TOA	SUR	ATM	TOA	SUR	ATM
Bay of Bengal	-8.5±2.2	-21.4±5	12.8±3.8	-8.6±2	-21.4±4.9	12.9±4.2
Arabian Sea	-7.7±1.2	-14.3±2.6	6.5±1.9	-6.8±1.8	-12.8±4	6±2.5

Table. Comparison of model simulated radiative forcing estimates over Northern and southern BoB and AS with that from Satheesh et al., 2006.

Region	Surface		Atmosphere	
	Present study (Mar-May 2006)	Satheesh et al., 2006 (2000-2004)*	Present study (Mar-May 2006)	Satheesh et al., 2006 (2000-2004)*
Northern BoB	-29.8±5	-9 to -30	18.3±3.4	6 to 20
Southern BoB	-13.3 ± 4.8	-3 to -12	7 ± 3	1 to 6
Northern AS	-14.2 ± 4.6	-12 to -18	5.2 ± 1.6	6 to 15
Southern AS	-15 ± 5	-3 to -6	6.7 ± 2	1 to 3

*whole-sky aerosol radiative forcing